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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,359	08/01/2003	Gary Wingett	878.0030.U1(US)	3984
29683	7590	08/09/2005	EXAMINER	
HARRINGTON & SMITH, LLP 4 RESEARCH DRIVE SHELTON, CT 06484-6212			SOHN, SEUNG C	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/632,359	<b>Applicant(s)</b> WINGETT ET AL.	
	<b>Examiner</b> Seung C. Sohn	<b>Art Unit</b> 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the different polarization surfaces in claim 10 and the surfaces with different heights in claim 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. ***Claims 3-4 are rejected under 35 U.S.C. 112, first paragraph***, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Regarding claim 3-4, the specification does not disclose that the detector and the source are located for rotation with the rotatable member. According to the specification, the rotatable member has an element providing areas having transmission characteristics. It is not understood how the areas in the rotating element accomplish transmission characteristics while the detector and/or the source are located for rotation with the rotatable member since if the source and/or detector are located for rotation with the rotatable member, the light from the source will always hit the same area of the rotatable member and/or the detector will always detect the light transmitted from the same area of the rotatable member. Clarification is required.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. ***Claim 7 is rejected under 35 U.S.C. 112, second paragraph***, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. On claim 7, line 2, it has been held that the recitation that an element "is able to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. ***Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Fu et al. (Patent No. US 5,748,181).***

Regarding claim 1, Fu et al. shows in Figs. 4-5 an element (2311, grid) providing a plurality of areas having respectively different electromagnetic radiation transmission characteristics (23111-large, 23112-medium, 23113-small transmission of light) for onward transmission of electromagnetic radiation, the areas being arranged to provide a directionally unique sequence of transmission characteristics along a path traced on rotation of the rotatable member (Col. 5, lines 2-25).

**Regarding claim 6**, Fu et al. shows in Fig. 5 that the areas comprise three different characteristics (23111, 23112, 23113) that are repeated in a same order on a surface of the element.

**8. Claims 1-2, 5-6, 8-9, 11, 13, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by White et al. (Patent App. Pub. No. GB 2,297,840 A).**

**Regarding claims 1-2, 5-6, 15 and 17**, White et al. shows in Figs. 1-4 a source of electromagnetic radiation (Fig. 2, 30), a detector for sensing electromagnetic radiation (Fig. 2, 31), and an element (11, pattern) located in a path between the source and the detector, wherein the element comprises a plurality of areas having respectively three different electromagnetic radiation transmission (or reflection) characteristics (5-low, 6-medium, 7-high reflection of light) for onward transmission of electromagnetic radiation, the areas being arranged to provide a directionally unique sequence of transmission characteristics along a path traced on rotation of the rotatable member (Page 5, Paragraphs 1 & 2).

**Regarding claims 8 and 13**, White et al. shows in Fig. 1 that the areas comprise surfaces on the element and a substantially same size.

**Regarding claims 9 and 11**, White et al. shows in Figs. 1-4 that the surfaces comprise different reflective surfaces and partially transparent surfaces.

**9. Claims 1-9, 11, 13, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Extance (Patent App. Pub. No. EP 0,210,825 A2).**

**Regarding claims 1-2, 5-6, 15 and 17,** Extance shows in Figs. 1-4 a source of electromagnetic radiation (Figs. 2-3, 14), a detector for sensing electromagnetic radiation (Figs. 2-3, 17) (Page 5, Paragraphs 1 & 2), and an element (12) located in a path between the source and the detector, wherein the element comprises a plurality of areas having respectively three different electromagnetic radiation transmission (or reflection) characteristics (different colors) for onward transmission of electromagnetic radiation, the areas being arranged to provide a directionally unique sequence of transmission characteristics along a path traced on rotation of the rotatable member (see abstract).

**Regarding claims 3-4 as understood,** Extance shows in Figs. 2-3 that a source (14) of electromagnetic radiation and a detector (17) for sensing the onward transmission of the electromagnetic radiation are located near the rotatable member (Col. 5, lines 9-11).

**Regarding claim 7 as understood,** Extance shows in Figs. 2-3 that the rotatable member (13) is movable in an axis perpendicular to a plane of rotation of the rotatable member.

**Regarding claims 8 and 13,** Extance shows in Fig. 1 that the areas comprise surfaces on the element and a substantially same size.

**Regarding claims 9 and 11,** Extance shows in Fig. 1 that the surfaces comprise different reflective surfaces (by wavelengths) and partially transparent surfaces.

**10. Claims 1-9, 11, 13, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Doggett (Patent App. Pub. No. EP 0,096,476 A2).**

**Regarding claims 1-2, 5-6, 15 and 17**, Doggett shows in Figs. 1-7 a source of electromagnetic radiation (Figs. 1-2, 10), a detector for sensing electromagnetic radiation (Figs. 1-2, 40) (Page 3, line 27 – Page 4, line 17), and an element (20) located in a path between the source and the detector, wherein the element comprises a plurality of areas having respectively three different electromagnetic radiation transmission (or reflection) characteristics (different diffraction gratings) for onward transmission of electromagnetic radiation, the areas being arranged to provide a directionally unique sequence of transmission characteristics along a path traced on rotation of the rotatable member.

**Regarding claims 3-4 understood**, Doggett shows in Figs. 2-3 that a source (10) of electromagnetic radiation and a detector (40) for sensing the onward transmission of the electromagnetic radiation are located near the rotatable member.

**Regarding claim 7 as understood**, Doggett shows in Figs. 2-3 that the rotatable member (20) is movable in an axis perpendicular to a plane of rotation of the rotatable member.

**Regarding claims 8 and 13**, Doggett shows in Fig. 3A that the areas comprise surfaces on the element and a substantially same size.

**Regarding claims 9 and 11**, Doggett shows in Fig. 3A that the surfaces comprise different reflective surfaces and partially transparent surfaces.



**11. Claims 1-9, 11-13, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Hettlage (Patent No. US 5,243,187).**

**Regarding claims 1-2, 5-6, 15 and 17,** Hettlage shows in Fig. 1 a source of electromagnetic radiation (5-8), a detector for sensing electromagnetic radiation (5-8) (Col. 3, line 66 - Col 4, line 3) and an element (1) located in a path between the source and the detector, wherein the element comprises a plurality of areas having respectively three different electromagnetic radiation transmission (or reflection) characteristics (sawtooth-shaped regions) for onward transmission of electromagnetic radiation, the areas being arranged to provide a directionally unique sequence of transmission characteristics along a path traced on rotation of the rotatable member.

**Regarding claims 3-4 understood,** Hettlage shows in Fig. 1 that a source of electromagnetic radiation and a detector for sensing the onward transmission of the electromagnetic radiation are located near the rotatable member.

**Regarding claim 7 as understood,** Hettlage shows in Fig. 1 that the rotatable member (1) is movable in an axis perpendicular to a plane of rotation of the rotatable member.

**Regarding claims 8 and 13,** Hettlage shows in Fig. 3A that the areas comprise surfaces on the element and a substantially same size.

**Regarding claims 9 and 11,** Hettlage shows in Fig. 3A that the surfaces comprise different reflective surfaces and partially transparent surfaces.

**Regarding claim 12,** Hettlage shows in Fig. 1 that the surfaces comprise different heights on the element.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. (Patent App. Pub. No. GB 2,297,840 A) or Extance (Patent App. Pub. No. EP 0,210,825 A2) or Doggett (Patent App. Pub. No. EP 0,096,476 A2) or Hettlage (Patent No. US 5,243,187) in view of Son et al. (Patent App. Pub. No. US 2002/0005820 A1).***

Regarding claim 10, White et al. (or Extance or Doggett or Hettlage) shows the claimed invention as above, but is silent that the surfaces comprise different polarization

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surfaces. Son et al. shows in Fig. 2 a polarization plate (41) having different polarization surfaces (43, 44) (Page 4, Paragraph 0060). It would have been obvious to a person having ordinary skill in the art to provide the polarization plate of Son et al. in the device of White et al. (or Extance or Doggett or Hettlage) for the purpose of measuring the displacement.

**15. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. (Patent App. Pub. No. GB 2,297,840 A) or Extance (Patent App. Pub. No. EP 0,210,825 A2) or Doggett (Patent App. Pub. No. EP 0,096,476 A2) or Hettlage (Patent No. US 5,243,187) in view of Yamada (Patent No. US 6,351,657).**

Regarding claims 14 and 16, White et al. (or Extance or Doggett or Hettlage) shows the claimed invention as above, but does not disclose that the encoder is for the use of mobile communications devices. Yamada shows in Fig. 6 a mobile communications device. It would have been obvious to a person having ordinary skill in the art to apply the optical encoder of White et al. (or Extance or Doggett or Hettlage) to the mobile communications device of Yamada, instead of the mechanical encoder, for the purpose of lengthening the lifespan of elements by optical contactless operation.

### ***Response to Arguments***

16. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seung C. Sohn whose telephone number is (571) 272-2446. The examiner can normally be reached on Monday through Friday from 8:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PATENT EXAMINER